certain considerations and views which will be best learned from the paper itself. After this, he resumes the consideration of Plücker's results "*upon the repulsion of the optic axes of crystals*" already referred to, and arrives at the conclusion that his results and those now described have one common origin and cause. He then considers Plücker's results in relation to those which he formerly obtained with heavy optical glass and many other bodies. In conclusion he remarks, "How rapidly the knowledge of molecular forces grows upon us, and how strikingly every investigation tends to develope more and more their importance and their extreme attraction as an object of study! A few years ago magnetism was to us an occult power affecting only a few bodies; now it is found to influence all bodies, and to possess the most intimate relations with electricity, heat, chemical action, light, crystallization, and, through it, with the forces concerned in cohesion; and we may, in the present state of things, well feel urged to continue in our labours, encouraged by the hope of bringing it into a bond of union with gravity itself."

December 14, 1848.

Sir R. H. INGLIS, Bart., Vice-President, in the Chair.

The Chairman announced that the Earl of Rosse had nominated as Vice-Presidents—The Marquis of Northampton, The Dean of Westminster, George Rennie, Esq., G. B. Airy, Esq., W. R. Grove, Esq., Sir R. H. Inglis, Bart.

His Grace The Archbishop of Canterbury was elected into the Society.

The following paper was read:—

"On the effect of surrounding Media on Voltaic Ignition." By W. R. Grove, Esq., M.A., F.R.S.

The author refers to some experiments of his published in the Philosophical Magazine for December 1845, and in the Bakerian Lecture for 1847, relating to the difference of ignition generated in a platinum wire heated by the voltaic current, when the wire is immersed in atmospheres of different gases. In the present paper these experiments are continued, the current being passed through two platinum wires both in the same voltaic circuit, but immersed in atmospheres of different gases.

It appears from these experiments that the heat generated in the wire is less in hydrogen and its compounds than in other gases; and that when the wires and their atmospheres of gas are immersed in given quantities of water, the water surrounding the hydrogenous gases is less heated than that surrounding those which contain no hydrogen.

Similar experiments, in which the wires are immersed in different liquids, are then given; the heat developed appears not to depend on the specific heat of either the gases or the liquids.

The two series of experiments are brought into relation by one wire being immersed in hydrogen and the other in water, by which it appears that the cooling effect of the hydrogen nearly equals that of water.

Further experiments are then given, in order to ascertain, if possible, to what chemical or physical peculiarity these cooling effects are due; and from them it appears that they are not due to the specific gravity, specific heat, or to any conducting power of the gases for electricity; and that they do not follow the same law as that by which gases escape from minute apertures. They apparently depend upon some molecular character of the gases, by which either the interchange of hot and cold particles is facilitated, or a superficial action takes place, the surface of the hydrogenous gases presenting a more ready escape to the heat, similarly to that which has been long observed with regard to the different molecular constitutions of solid bodies, such for instance as the more rapid radiation or absorption of heat by black than by white surfaces, in the present case the epipolic action being dependent on the surface of the aëriform medium, and not on that of the solid substances.

December 21, 1848.

The DEAN OF WESTMINSTER, Vice-President, in the Chair.

A paper was in part read, entitled, "Contributions to the Physiology of the Alimentary Canal." By W. Brinton, Esq., M.B. Communicated by R. Bentley Todd, M.D., F.R.S.

The Society then adjourned over the Christmas recess, to meet again on the 11th of January next.

January 11, 1849.

The MARQUIS OF NORTHAMPTON, V.P., in the Chair.

The reading of a paper, entitled, "Contributions to the Physiology of the Alimentary Canal." By W. Brinton, Esq., M.B. Communicated by R. Bentley Todd, M.D., F.R.S., was resumed and concluded.

The paper consists of two parts, having a real relation to each other, though apparently little connected.

I. *On the Movements of the Stomach.*—The anatomy of its muscular coat is first briefly mentioned, and the so-called oblique fibres of some authors stated to be really transverse, *i. e.* at right angles to the altered direction of the canal.

The muscular actions of the digesting stomach are then considered.